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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,859	12/15/2005	Darrell V. Chenault	CGL03/0249US01	2353
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CARGILL, INCORPORATED LAW/24 15407 MCGINTY ROAD WEST WAYZATA, MN 55391			NIEBAUER, RONALD T	
			ART UNIT	PAPER NUMBER
			1654	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,859	Applicant(s) CHENAULT ET AL.	
	Examiner RONALD T. NIEBAUER	Art Unit 1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 42-61 is/are pending in the application.
- 4a) Of the above claim(s) 58-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 42-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/15/05, 8/1/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

It is noted that applicants have elected Group II (claims 1-20,25-36) without traverse.

Applicant's election with traverse of the following species:

Protein material – turkey feathers

Alkaline material – sodium hydroxide

in the reply filed on 11/3/08 is acknowledged. It is noted that the traversal is with respect to the election of species, not the election of the group. The traversal is on the ground(s) that there is substantial commonality of the subject matter and that there is no substantial burden.

Applicants arguments have been considered but are not persuasive.

Although applicants argue that there is substantial commonality of the subject matter, the species require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries) and the prior art applicable to one species would not likely be applicable to another species.

Although applicants argue that there is no substantial burden, the species require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries) and the prior art applicable to one species would not likely be applicable to another species.

The requirement is still deemed proper and is therefore made FINAL.

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Claims 1-41 have been cancelled. Claims 42-61 have been added as new claims. Claims 58-61 correspond to original group I and claims 42-57 correspond to original group II. In the instant case, the elected species have been found in the prior art as discussed below. Any art that reads on non-elected species that was uncovered in the search for the elected species is cited herein.

Claims 58-61 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/3/08.

Claims 42-57 are under consideration

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 53,55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially" in claims 53,55 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 42,45-47,50,53-55 are rejected under 35 U.S.C. 102(b) as being anticipated by Naito et al (US 4,591,497).

Naito teach the mixing of feathers (which are an animal-derived protein containing material) and caustic soda (i.e. sodium hydroxide) followed by hydrolysis (column 4 lines 24-29). Naito teach that after neutralization the product was filtered and the filtrate was subjected to ultrafiltration using a membrane with a fractional molecular weight of 500 (column 4 lines 30-39). Thus Naito teach the active steps of claim 42 of the instant invention. It is noted that claim 42 states that the reaction product comprises peptones. Since Naito teach the active steps of the invention the process of Naito would necessarily form peptones. Since Naito specifically teach caustic soda (i.e. sodium hydroxide) (column 4 line 28-30) the limitations of claim 45,47 are met. Naito teach that 100g of feathers and 3 liters of 0.3N caustic soda (i.e. sodium hydroxide) were used (column 4 lines 24-29). As such the mass of sodium hydroxide is $0.3 \text{ mol/l} \times 40 \text{ g/mol} = 36\text{g}$. Since there are 3 liters of liquid and 100g of feathers the total mass is 3100g. Thus the wt% of sodium hydroxide is $(36\text{g}/3100\text{g}) \times 100 = 1.2\%$ thus meeting the limitation recited in claim 46. Since Naito teach using a membrane with a fractional molecular weight of 500 (column 4 lines 30-39) the components of the permeate would have a molecular weight of less

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than 1000 Da as recited in claim 55. Naito teach that the concentrate had a molecular weight of 1800 (column 4 lines 37-38) thus meeting the limitations as recited in claims 50,53-54 of the instant invention.

Although unclear (see 112 2nd) the claims have been given the broadest reasonable interpretation. Since Naito teach using a membrane with a fractional molecular weight of 500 (column 4 lines 30-39) the components of the permeate have been interpreted as meeting the limitations recited in claims 53,55.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 42-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito et al (US 4,591,497) and Kawasaki (WO 90/01023 as cited in IDS 12/15/05 cite B1) and Blanch et al, (Biochemical Engineering, 1997, Marcel Dekker, pages 467-468 (total of 4 pages)).

As discussed above, Naito teach the mixing of feathers (which are an animal-derived protein containing material) and caustic soda (i.e. sodium hydroxide) followed by hydrolysis (column 4 lines 24-29). Naito teach that after neutralization the product was filtered and the filtrate was subjected to ultrafiltration using a membrane with a fractional molecular weight of 500 (column 4 lines 30-39). Thus Naito teach the active steps of claim 42 of the instant invention. It is noted that claim 42 states that the reaction product comprises peptones. Since Naito teach the active steps of the invention the process of Naito would necessarily form peptones. Since Naito specifically teach caustic soda (i.e. sodium hydroxide) (column 4 line 28-30) the limitations of claim 45,47 are met. Naito teach that 100g of feathers and 3 liters of 0.3N caustic soda (i.e. sodium hydroxide) were used (column 4 lines 24-29). As such the mass of sodium hydroxide is $0.3 \text{ mol/l} \times 40 \text{ g/mol} = 36\text{g}$. Since there are 3 liters of liquid and 100g of feathers the total mass is 3100g. Thus the wt% of sodium hydroxide is $(36\text{g}/3100\text{g}) \times 100 = 1.2\%$ thus meeting the limitation recited in claim 46. Since Naito teach using a membrane with a fractional molecular weight of 500 (column 4 lines 30-39) the components of the permeate would have a molecular weight of less than 1000 Da as recited in claim 55. Naito teach that the concentrate had a molecular weight of 1800 (column 4 lines 37-38) thus meeting the limitations as recited in claims 50,53-54 of the instant invention.

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Naito does not expressly teach the source of the feathers (column 4 lines 24-29) that are used as recited in claims 43-44 of the instant claims. Naito does not expressly teach the temperature recited in claim 48 or the time period recited in claim 49. Naito does not expressly recite the pore size of the filters (column 4 lines 30-39) that are used as recited in claims 51-52,56 of the instant invention. Naito does not expressly teach the use of spray drying as recited in claim 57.

Naito does teach that a range of starting materials can be used (column 2 lines 40-43) for the hydrolysis including feathers.

Kawasaki also teach hydrolysis of feathers, specifically turkey feathers (example 1 page 12). In the instant case, the claims would have been obvious because the substitution of one known element (i.e. turkey feathers) for another (i.e. feathers) would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus the limitations of claims 43-44 are met. One would have a reasonable expectation of success since Naito does teach that a range of starting materials can be used (column 2 lines 40-43) for the hydrolysis including feathers.

Naito teach that the hydrolysis can be carried out with a variety of known methods (column 2 lines 48-50). In one example Naito teach the use of a temperature of 120-130C for 5 hours.

Kawasaki also teach a variety of hydrolysis conditions and expressly recites a preferable temperature of 100C (page 4 lines 27-30). Kawasaki recognizes that the efficiency of the process is affected by numerous factors (page 6 lines 13-15) and teach that the processing time can be varied (page 8 lines 27-31). Kawasaki teach a range of pH values (claim 5). It would have been

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obvious to one skilled in the art at the time of invention to determine all optimum and operable conditions (e.g. temperature, pH, concentration, time of process), because such conditions are art-recognized result-effective variables that are routinely determined and optimized in the art through routine experimentation. ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). See MPEP § 2144.05). One would recognize that there are numerous variables involved in the process and one would be motivated to alter the variables to optimize the cost or the yield or the length of the reaction so that more reactions can be carried out over a given period of time. As such, the limitations of claims 48-49 of the instant invention are met. One would have a reasonable expectation of success since both Naito and Kawaski recognize that a range of processing variables can be used to carry out the hydrolysis.

Naito teach that after neutralization the product was filtered (column 4 lines 30-32).

Although Naito does not expressly teach the size of the filter that was used in the filtering step one would recognize that the removal of unwanted impurities and contaminants as a common purification step. Blanch teach that filtration offers many advantages as a purification step (page 467 last paragraph). Blanch teach that microporous membranes in the range of 0.1-10 micron are commonly used (Table 6.5 page 468). Since Naito teach an ultrafiltration step after the initial filtration (column 4 lines 30-39) one would be motivated to remove any larger sized contaminants to avoid fouling of the ultrafiltration membrane. As such, one would be motivated to use a membrane such as a membrane of 5 micron based on Table 6.5 of Blanch. In other words, although Naito does not expressly recite the size of the filter in the first filtering step one

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would be motivated to use a 5 micron filter as is commonly used in the art thus meeting the limitation of claim 56 of the instant invention. One would have a reasonable expectation of success since Naito teach that after neutralization the product was filtered (column 4 lines 30-32) and filtration to remove debris is common in the art as taught by Blanch (see Table 6.5 page 468).

Naito teach ultrafiltration using a membrane with a fractional molecular weight of 500 (column 4 lines 30-39).

Although Naito does not expressly teach the pore size of the membrane, Blanch teach ultrafiltration membranes (Table 6.5 page 468) of pore size from 0.001-0.1 micron (10-1000 Angstrom). Further, one would recognize that a relatively small pore size would be necessary to achieve the molecular weight cut-off of 500. Thus one would be motivated to use membrane filters as recited in claims 51-52 of the instant invention. One would have a reasonable expectation of success since Naito teach ultrafiltration using a membrane with a fractional molecular weight of 500 (column 4 lines 30-39) and a variety of ultrafiltration membrane sizes are common in the art as taught by Blanch (see Table 6.5 page 468).

Naito teach drying of the hydrolysate (column 4 lines 21-23, 34-36). One would recognize that a dry product is desirable and that spray drying is a well known technique that provides products with desirable properties. As such one would be motivated to substitute spray drying for the drying process described by Naito thus meeting the limitation recited in claim 57. The claims would have been obvious because the substitution of one known technique (i.e. spray drying) for another (i.e. freeze drying) would have yielded predictable results to one of ordinary

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skill in the art at the time of the invention. One would have a reasonable expectation of success since Naito teach drying of the product (column 4 lines 21-23, 34-36).

Although unclear (see 112 2nd) the claims have been given the broadest reasonable interpretation. Since Naito teach using a membrane with a fractional molecular weight of 500 (column 4 lines 30-39) the components of the permeate have been interpreted as meeting the limitations recited in claims 53,55.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONALD T. NIEBAUER whose telephone number is (571)270-3059. The examiner can normally be reached on Monday-Thursday, 7:30am-5:00pm, alt. Friday, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anish Gupta/
Primary Examiner, Art Unit 1654

/Ronald T Niebauer/
Examiner, Art Unit 1654